pronounced. All the articulations were involved, even those of the vertebræ and the temporomaxillary joint. Nearly all the joints affected became anchylosed, rendering the patient helpless. No visceral lesions could be detected.

In the second case, a boy, aged eight years, there was chronic articular rheumatism of all the members except the left arm. After a period of slight improvement the symptoms became suddenly aggravated. The child remained under observation for only three weeks. The third observation, of which only a few notes are given, was really a case of arthritis deformans in a girl aged eight years. The disease had begun as a chronic polyarthritis.

THERAPEUTICS.

UNDER THE CHARGE OF

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On the Administration of Anæsthetics to Children.—Mr. W. I. McCurdie and Dr. C. F. Marshall insist that the administration of anæsthetics, especially chloroform, to children is by no means so free from danger as is generally supposed. The muscular system in children is comparatively feeble, so that rigidity is less marked. Elasticity of the chest is at its maximum, so that artificial respiration can be easily and effectively performed. The bloodvessels are more elastic and their contraction tends to counteract any full pressure. The mucous membranes are more sensitive to irritations, particularly of the respiratory tract and the stomach. Cough and mucous secretion are often easily excited, and vomiting tends to occur more rapidly and with less warning than in the case of adults. The nervous system is more sensitive and reacts more quickly to stimulation; hence there is greater tendency to shock, and recovery from it is more rapid. Reflex action is more marked and also more quickly abolished. This results, in the first place, in increased danger from such reflex effects as spasm of the glottis. In the second place, the early abolition of reflex action results in the disappearance of certain guides which are habitually used in the adult, more especially the corneal and conjunctival reflexes, which in children are usually lost some time before anæsthesia is complete. Nervousness and fear are often strongly manifested. The pulse is not quite so reliable a guide in young children as in adults. In preparation for anæsthesia nothing but digestible foods should be given. Milk is forbidden, because curds may be formed under the influence of fear, which may remain undigested for several hours. Whey, or a good meat broth, is recommended. Since children are so liable to shock, they should be kept warm by various devices during the operation. Anæsthesia must be induced with as little crying and struggling as is possible. The dosage of the anæsthetic should be at first continuous and of gradually increasing strength, while the maintenance of narcosis should be by intermittent doses. As a routine anæsthetic, either the alcohol-chloroform-ether mixture, or a mixture of two parts of ether to one of chloroform, is recommended. For shorter operations nitrous oxide alone, or with oxygen, possesses advantages. Nitrous oxide, however, should not be followed by chloroform. Of the difficulties met with during operation, reflex spasm of the glottis is frequent. When this occurs it is best to push the administration of ether; pushing chloroform is dangerous, owing to the liability to inhale an overdose when the spasm has passed off. If the breathing becomes shallow it may be improved by gently rubbing the lips. If it still fails after removal of any obstruction, artificial respiration must be performed and strychnine and atropine injected subcutaneously. Injections of strychnine and atropine or digitalis are to be used to relieve heart-failure. If this occurs during the commencement of administration and after struggling, it is due to engorgement of the right heart, and should be treated by raising the patient to the vertical position, in order to relieve the overdistended right heart by gravity. If it occurs at a later period it is due to vasomotor paralysis or to the toxic effect of the anæsthetic or the medullary nerve-centres. The treatment for this condition is either partial or complete inversion of the patient, together with artificial respiration. Vomiting after administration may be relieved by sipping hot water or by inhaling vinegar from a handkerchief.—*Treatment*, 1900, No. 2, p. 65.

[If digitalis is to be of any use in heart-failure during surgical operations it should be administered at least thirty-six hours before the operation takes place. For it the quickly acting sparteine or strophanthus should be substituted.—R. W. W.]

Adonidin.—DR. HEINRICH STERN states that this remedy, notwithstanding its most prompt and energetic action, may be safely administered in pathological conditions where digitalis, if given at all, should be administered only with the utmost caution. This refers to fatty degeneration of the heart, pericarditis, simple hypertrophy, compensatory hypertrophy, and certain atheromatous conditions. In rapidity of action adonidin almost equals nitroglycerin. In this respect it surpasses by far other heart remedies, as digitalis, digitalin, digitoxin, caffeine, sparteine, strophanthus, convallaria, and convollamarin. In certainty of action it equals nitroglycerin and surpasses by far caffeine, sparteine, convollamarin, strophanthus, and digitalis or its glucosides. In permanency of action, although no cumulative effects were ever noted, it surpasses nitroglycerin, caffeine, convollamarin, sparteine, digitalis, digitalin, and digitoxin. Its diuretic action in health is limited. As a physiological diuretic it is decidedly inferior to caffeine, strophanthus, convollamarin, and sparteine. In certain affections of the kidney and in pyretic conditions its diuretic action is more pronounced, which is probably due to increased arterial tension. Its greatest diuretic effect is exhibited in conditions accompanied by dropsy and low arterial tension. In the healthy individual it causes a slight increase of temperature, but it tends to lower the body-heat in pyretic conditions. The dose varies from one-thirtieth to one-tenth of a grain two or three times a day. One-sixth of a grain administered in any form influences the œdematous condition and produces diuresis, especially when the arterial tension is low.—*Merck's Archives*, 1900, No. 5, p. 163.

[If the irritant properties of this remedy can be eliminated it would meet certain indications more satisfactorily than others of this class.—R. W. W.]

Treatment of Pertussis.—Dr. H. R. NORTON states that rectal injections of carbon dioxide gas given thrice daily, and for from five to ten minutes, had apparently benefited 143 of 150 patients. In instances of severe disease the vomiting had diminished or ceased by the second or third day. The duration of the disease had not been influenced. During the administration of the gas the entire cutaneous surface would flush, especially the face. In a few instances a mild diarrhœa had been set up, apparently as the result of irritation of the rectum by the injection tube. In the following year twenty patients had been treated with a negative result in all; at this time the gas had been taken from the tanks in which it had been compressed.

Various Therapeutic Serums.—DR. ANTONIO FANONI sums up the present state of our knowledge concerning their value. The efficiency of Pane's serum in lobar pneumonia has been recognized by impartial observers. When injected early enough in sufficient quantity, and if not deteriorated by age, it quickly produces a lowering of the temperature, an improvement in the subjective comfort of the patient, as well as an amelioration of all the other symptoms. Resolution also tends to take place more quickly. Marmorek's antistreptococcus serum has the disadvantage of saving the animals experimented upon only from the streptococcus which was used to prepare the serum, and not from the other varieties of streptococci. It has, however, a certain effect on animals infected with other streptococci, enough to retard death when compared with the control animals. The Yersin-Roux serum against the bubonic plague is very active, judging from experiments on animals; but in man the results are not very satisfactory. The same may be said of the serum of Lustig. About the serum against yellow fever, nothing definite can be said. Maragliano's serum against tuberculosis when put to the test in treating tuberculous patients has given indisputable recoveries. Some of the patients after this treatment finally become immune against doses of tuberculin that are ten times larger than the initial dose which was sufficient to produce a reaction. Tizzoni's antitetanic serum gives results which are very satisfactory. Inasmuch as in diphtheria and tetanus the death of the patient is brought about by the action of the toxins produced by the respective bacteria, the action of these serums indisputably takes place against their respective toxins by counteracting the intoxication of the organism. On the other hand, in puerperal fever due to streptococci, in lobar pneumonia caused by the pneumococcus of Fraenkel, and in bubonic plague produced by the bacillus of Yersin, the toxic phenomena are of secondary importance, while the predominant manifestations are the infectious phenomena—that is, those produced by the bacteria in their immediate contact with the cells of the organism. It is evident that the products of the metabolism of these bacteria, even without the formation of toxins, would be enough to produce such changes in the single cells as to destroy life. The failure of Pane's serum when employed in the pre-agonal stage is explicable on the ground that we cannot restore the functions of the cells, which are indispensable to the life of the entire organism, once they are destroyed.—*Pediatrics*, 1900, No. 10, p. 393.

Therapy of Kola.—DR. C. C. TARBROUGH believes that this drug is a general tonic stimulant, acting primarily on the cerebro-spinal centres. No depressing effects follow as the influence of the drug wears off. Thus there is absolutely no danger of forming a kola habit, no such result being on record. Its physiological action is analogous to caffeine; but in the fresh state it differs in that it is more pronounced and prolonged. Fresh, undried kola apparently is more active because the caffeine is presented to the system dissolved in the natural juices of the drug, and is readily liberated in a highly active condition. Failure to obtain good results from the drug are very often ascribable to preparations representing the dried drug. Pertussis is much benefited by kola; the attack is cut short and the general condition rapidly improved. Very many patients with asthma experience immediate and sometimes permanent relief. This applies especially to asthma of nervous origin. That due to pressure (tumor) is unaffected by the drug. Kola is a decided diuretic, acting more fully on some people than on others. It is more prompt and efficacious than digitalis and caffeine in combination. It affects the kidney directly, but, in addition, by raising the blood-pressure. As a cardiac tonic it ranks with digitalis; it has, however, no cumulative action, and it is therefore a good substitute for digitalis, or they can be used in combination. Melancholia has been very satisfactorily treated with kola, in some instances complete cure being obtained. In chronic alcoholism and morphinism, kola is invaluable as a stimulant and to support the system against the shock of gradual or sudden withdrawal of the accustomed stimulant. Surgical shock can be combated and even prevented by kola given immediately before and after operation. Collapse is much less likely to ensue. Uterine inertia due to nervous exhaustion responds to the stimulus of kola. Normal perspiration is aided also. The characteristic action of the drug is its sustaining, strength-conserving power, and it is particularly of value when fatigue and exhaustion are imminent, as in loss of sleep.—*Virginia Medical Semi-Monthly*, 1899, vol. iv. p. 429.

[The caffeine-percentage increases in kola on drying, therefore, the preference for the fresh drug is hardly warranted.—R. W. W.].

The Therapeutic Value of Intravenous Injections of Iron.—DOTT F. APORTI has found, after exhaustive research, that the excellent results obtained are due to the remedy and not to other treatment. Within a few days it is possible to increase the hæmoglobin fifty per cent. This is an excellent method, devoid of danger and certain in its results.—*Gazetta degli Ospedali e delle Cliniche*, 1899, No. 131, p. 1386.

Artificial Inoculations.—DR. DYCE DUCKWORTH reports that after two injections of the serum (ten days intervening) there was noticed severe constitutional and temporary local disturbance, general malaise, headache, diaphoresis, with locally a "bruised feeling," an appearance resembling cellulitis, and a very slight febrile movement. One week after the second inoculation Widal's test was made, and a very sharp reaction followed, even with a dilution of one to two hundred. A like procedure in a second patient gave the same results. The second inoculation, after an interval of some days, is strongly advised to secure the full benefit of the vaccine. Perfect asepsis is, of course, requisite The patient is to remain in bed two days, keeping quiet until all reaction has ceased. Following these precautions in healthy subjects, results are satisfactory. Widal's test should be tried every six months for some time.—*The British Medical Journal*, 1899, No. 2029, p. 1407.

Diphtheria.—DR H B. SHEFFIELD notes the local nature of the disease primarily, and that constitutional effects follow through the rapid absorption of the toxins locally formed A fatal result is due either to septic poisoning or to obstruction of the air-passages. From this the following deductions are made: 1. Endeavor to reduce hyperæmia and excessive exudation in the throat in order to avoid respiratory obstruction. 2. Destroy so soon as possible the diphtheria bacilli, locally, to prevent formation and absorption of toxins. 3. Administer such remedies as will combat or neutralize the toxins, preventing their general dissemination. 4. Promote the action of emunctories in general. Among the germicides this prescription is highly recommended: ℞.—Glycerite of papoid, 30; carbolic acid, 1; powdered camphor dissolved in alcohol, 1; glycerin to 120. This is to be applied to the throat with a cotton swab every two hours, changing the swab each time, and diminishing the frequency of applications with the abatement of the severity of the symptoms. A second formula is: equal parts of hydrogen peroxide, sodium borate and glycerin dissolved in eight parts of rose-water, of which a tablespoonful is instilled into the nose every two hours, when membranes are present in the nares, and every four hours in their absence. Do not wait until cardiac debility appears before giving stimulants. The complete anorexia so often present is explained as a probable "provision of nature to starve the micro-organisms lodged in the alimentary canal." Nourishing food is, however, insisted on, and nutrient enemata if required. For internal medication strychnine with iron should be given. Antipyretics are rarely needed, and small doses are sufficient to relieve the pain and reduce the fever. Laryngeal diphtheria is not, as a rule, amenable to local treatment. If there be any membrane visible in the fauces the first of the above prescriptions is advised. The nose is always to be cleansed with the second solution. In severe cases intubation is early required, thus dispensing with late tracheotomy. Intubation demands the avoidance of liquids by mouth; strychnine is given hypodermatically. To reduce the swelling of the submaxillary glands, iodine ointment, with ichthyol 10 per cent., is valuable. The writer's experience with antitoxin is that it should be regularly administered in laryngeal diphtheria, though what proportion of the beneficial results obtained from it in connection with local and internal remedies is still undetermined.—*New York Medical Journal*, 1899, No. 1100, p. 954

Deaths Under Chloroform.—DR. J. EDMUNDS makes a further plea for a more accurate administration of chloroform for anæsthesia, insisting that a volumetric measure of the amount inhaled should be made, and that such measure is possible with the Krohne inhaler. He cites eighty-three deaths in

England during 1899, and asserts that if these are reported two hundred must have occurred, the remainder being suppressed. Deaths from chloroform, cyanosis being present, are due to asphyxia; more or less pure air surcharged with chloroform causes spasm of the glottis, of the respiratory muscles, diaphragm, and myocardium. Patients die from asphyxia complicated by angina of the heart. If sudden death do not follow, and chloroform is continued, paralytic relaxation of the glottis follows. The glottis being paralyzed, more surcharged air enters the bronchi, and shortly the end organs of the whole system of respiratory nerves are poisoned by direct soakage. It is not so much the quantity ingested as the local surcharge with chloroform of the lungs and heart. Waller shows that 6 per cent. vapor-volume of chloroform kills a nerve. Four minims of chloroform are the equivalent of four cubic inches of chloroform vapor. This amount would saturate the entire mass of the pulmocardiac blood and myocardium. Eighteen minims of chloroform are required in the blood to induce full surgical anæsthesia. With the Krohne inhaler twenty minims are ingested in one minute. Some will be exhaled by the lungs and skin, but the ingested chloroform is probably a lethal dose by reason of the want of time for diffusion through the general system and the local surcharging of pulmocardiac blood. Therefore a much smaller ingestion of chloroform is advised, the time required for full anæsthesia being about six minutes. Perfectly safe administration can be obtained by beginning with small volumes of chloroform air for each inspiration, such as cause neither cough nor spasm. The feather indicator is recommended as an index for respiratory currents.—*The Lancet*, 1900, No. 3987, p. 227.

The Non-surgical Use of Schleich's Infiltration Anæsthesia.—DR. RICHARD BLOCH proposes this method: 1. For the painless application of the cautery. 2. As an anti-neuralgic in (*a*) peripheral neuralgias; (*b*) various painful peripheral affections, as bruises, and (*c*) various joint diseases. 3. In differential diagnosis between (*a*) neuralgias of peripheral, central, or reflex origin, and (*b*) simulated and real pains.—*Centralblatt für die gesammte Therapie*, 1900, Heft 2, S. 76.

The Present Aspect of Antitoxic Treatment of Diphtheria.—DR. F. VILLY recommends that the treatment be commenced as early as possible. Ten thousand units will often accomplish more given early than fifty thousand given after several days' duration of the disease. The former dose suffices for mild injections. Twenty thousand units in all are often injected. There is no evidence that such doses produce any harmful effect. A good rule is that antitoxin should be given in sufficient dose to cause a distinct reaction in twelve hours. If reaction does not follow, the dose is to be repeated once or twice until there is some apparent effect. Too much rather than too little is advised. Except in the worst infections results of injection are permanent, complete recovery being likely, though some form of paralysis may follow; anæmia and cardiac weakness persist often for months. Since antitoxin has been used suppression of urine is almost unknown. The increase in albuminuria is largely apparent rather than real, for greater care has been exercised in estimating its percentage. It is uncommon for a permanent nephritis to supervene. The albumin rapidly disappears, and no bad effects follow. Increase in the frequency of post-diphtheritic paralysis is explained by the fact that patients recover from more serious attacks of the disease than formerly, and these are the ones most subject to paralysis. Mild injections may be followed by paralysis, but it is less frequent. Statistics show that the bulk of patients suffering from paralysis are those who undergo antitoxic treatment comparatively late in the disease. Before the introduction of antitoxin this was not the case. Exceptionally, grave constitutional effects follow. They are transient, lasting but a few hours. A chill may occur with fever, and an urticarial rash appears within a short time after injection. Such phenomena occur more frequently in relapses of diphtheria, when a second injection is given several weeks after the subsidence of a primary attack. Antitoxin rashes more often occur between the tenth and fourteenth days. The eruption consists of raised circular erythematous areas, circinate forms often appearing. They are usually confined to the extensor surfaces of the knees and elbows. The eruption lasts from a few hours to several days. Occasionally it resembles measles. The diagnosis is often difficult. Desquamation sometimes follows the eruption. Pyrexia is less common; it is mild and lasts but a few hours. Joint pains are still more rare; they last a few days, and disappear without treatment. Various degrees of heat render blood serum harmless with regard to the above after-symptoms. Antitoxic serum has not as yet been prepared free from these deleterious qualities. Abscesses should never occur at the seat of injection, antiseptic precautions being observed.—*The Medical Chronicle*, 1900, vol. ii. p. 241.

GYNECOLOGY.

UNDER THE CHARGE OF

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Extirpation of the Vagina for Carcinoma.—SIPPEL (*Centralblatt für Gynäkologie*, 1900, No 4) describes the following operation which he performed successfully in a case in which the entire vagina was transformed into a narrow rigid tube through cancerous infiltration of its walls. An incision was made on the left side of the introitus between the anus and tuber ischii, the ischiorectal fossa being freely opened. The left lateral and posterior vaginal walls were separated by blunt dissection as high as the attachment of the levator ani, bleeding vessels being ligated. The incision was then carried around the introitus and the urethra separated. The lower end of the vagina was then clamped and drawn downward, while the rectum and urethra were protected by retractors, which separated the upper and lower edges of the wound so that the relations of the organs in the pelvis could be